

Appl. No. 10/722,157
Amdt. Dated November 14, 2006
Reply to Office Action of August 22, 2006

Attorney Docket No. 81863.0024
Customer No.: 26021

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-6. (Canceled)

7. (Currently amended) The method of manufacturing piezoelectric ceramics according to claim [[6]] 13, wherein the supporting member has a surface roughness Ra of 3 μ m or less.

8. (Currently amended) The method of manufacturing piezoelectric ceramics according to claim [[6]] 13, wherein the green compact is fired while being interposed between a pair of the supporting members.

9. (Currently amended) The method of manufacturing piezoelectric ceramics according to claim [[6]] 13, wherein the supporting member contains a crystal of at least one kind selected from the group consisting of alumina, beryllia, zirconia, magnesia, mullite, spinel structure, bismuth layer-structured compound, compound of tungsten bronze structure, compound of Pb-based perovskite structure, compound of niobium-based perovskite structure and compound of tantalum-based perovskite structure.

10. (Currently amended) The method of manufacturing piezoelectric ceramics according to claim [[6]] 13, wherein the supporting member comprises zirconia containing at least one kind selected from the group consisting of CaO, MgO, Y_2O_3 and rare earth elements.

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11. (Previously presented) The method of manufacturing piezoelectric ceramics according to claim 9, wherein the crystal constituting the supporting member has an average grain size of 5 to 30 μm .

12. (Canceled)

13. (Currently amended) The A method of manufacturing piezoelectric ceramics according to claim 12 comprising the steps of:

disposing a green compact comprising a piezoelectric ceramic powder on a supporting member whose surface has porosity of 5% or less and flatness 20 μm or less; and

firing the green compact while contacting with the surface of the supporting member, wherein the green compact comprising a piezoelectric ceramic powder of a perovskite compound containing Pb is fired while being inserted into a sealed space, which satisfies the relations represented by the following expressions (1) and (2):

$$1.0001 \times (V2 + V3) \leq V1 \leq 4.0000 \times (V2 + V3) \quad (1)$$

$$0.02 \times V3 \leq V2 \leq 50 \times V3 \quad (2)$$

where $V1$ denotes a volume of a sealed space, $V2$ denotes a volume of a supporting member and $V3$ denotes a volume of a green compact, when a supporting member having surface roughness R_a of 1 μm or less, flatness of 20 μm or less and a volume $V2$ is placed on the green compact having a volume $V3$ and they are inserted into the sealed space having a volume $V1$.

14-30. (Canceled)

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31. (Currently amended) The method of manufacturing piezoelectric ceramics according to claim [[6]] 13, wherein the supporting member is a sintered body.